

WHAT IS CLAIMED IS:

1           1.    A wireless network capable of providing a MS-MS packet  
2   data call between a source mobile station (MS) and a destination  
3   mobile station (MS), said wireless network comprising:  
4           a first base station capable of wirelessly communicating with  
5   said source mobile station;  
6           a second base station capable of wirelessly communicating with  
7   said destination mobile station;  
8           a mobile switching center capable of connecting said first and  
9   second base stations; and  
10          a local Internet protocol (IP) network capable of transferring  
11   data packets associated with said MS-MS packet data call directly  
12   between said first and second base stations via a first packet data  
13   bearer connection, wherein said first base station is capable of  
14   receiving a first message from said source mobile station  
15   indicating that said source mobile station is to be handed off to a  
16   third base station, and wherein said first base station, in  
17   response to said first message, initiates establishment of a second  
18   packet data bearer connection on said local IP network for  
19   transferring said data packets associated with said MS-MS packet  
20   data call directly between said second and third base stations.

1           2.    The wireless network as set forth in Claim 1, wherein  
2    said first message contains signal strength measurements associated  
3    with said third base station.

1           3.    The wireless network as set forth in Claim 1, wherein  
2    said first base station is operable to respond to said first  
3    message by transmitting a second message to said mobile switching  
4    center indicating that said source mobile station is being handed  
5    off to said third base station and wherein said second message  
6    contains: 1) an IP address of said second base station on said  
7    local IP network; 2) a service option field associated with said  
8    MS-MS packet data call; 3) a call identifier value used by said  
9    first and second base stations to identify said MS-MS packet data  
10   call; and 4) mobile identifier values associated with said source  
11   and destination mobile stations.

1           4.    The wireless network as set forth in Claim 3, wherein  
2    said second message comprises a Handoff Required message.

1           5.    The wireless network as set forth in Claim 3, wherein  
2    said mobile switching center is operable to respond to said second  
3    message by transmitting a third message to said third base station,  
4    wherein said third message contains: 1) said IP address of said  
5    second base station on said local IP network; 2) said service  
6    option field associated with said MS-MS packet data call; 3) said  
7    call identifier value used by said first and second base stations  
8    to identify said MS-MS packet data call; and 4) said mobile  
9    identifier values associated with said source and destination  
10   mobile stations.

1           6.    The wireless network as set forth in Claim 5, wherein  
2    said third message comprises a Handoff Request message.

1           7.    The wireless network as set forth in Claim 5, wherein  
2    said third base station responds to said third message by  
3    establishing said second packet data bearer connection with said  
4    second base station.

1           8.    The wireless network as set forth in Claim 7, wherein  
2   said third base station establishes said second packet data bearer  
3   connection using 1) said IP address of said second base station; 2)  
4   said call identifier value used by said first and second base  
5   stations to identify said MS-MS packet data call; and 3) said  
6   mobile identifier values associated with said source and  
7   destination mobile stations.

1           9.    The wireless network as set forth in Claim 7, wherein  
2   said second base station responds to establishment of said second  
3   packet data connection by said third base station by transmitting  
4   data packets associated with said MS-MS packet data call to said  
5   third base station via said second packet data bearer connection.

1           10.   The wireless network as set forth in Claim 9, wherein  
2   said mobile switching center is operable to transmit a fourth  
3   message to said first base station after said source mobile station  
4   is handed off to said third base station, and wherein said fourth  
5   message causes said first base station to notify said second base  
6   station that said first packet data bearer connection between said  
7   first and second base stations is being removed.

1           11. The wireless network as set forth in Claim 10, wherein  
2   said second base station, in response to said notification from  
3   said first base station that said first packet data bearer  
4   connection is being removed, ceases transmitting data packets  
5   associated with said MS-MS packet data call to said first base  
6   station.

12. For use in a wireless network comprising: i) a first base station that wirelessly communicates with a source mobile station (MS); ii) a second base station that wirelessly communicates with a destination mobile station (MS); iii) a mobile switching center that connects the first and second base stations; and iv) a local Internet protocol (IP) network that transfers data packets associated with the MS-MS packet data call directly between the first and second base stations via a first packet data connection, a method of handling a MS-MS packet data call between the source mobile station and the destination mobile station comprising the steps of:

receiving in the first base station a first message from the source mobile station indicating that the source mobile station is to be handed off to a third base station; and

in response to the first message, initiating establishment of a second packet data bearer connection on the local IP network for transferring the data packets associated with the MS-MS packet data call directly between the second and third base stations.

13. The method as set forth in Claim 12, wherein the first message contains signal strength measurements associated with the third base station.

1        14. The method as set forth in Claim 12, further comprising  
2        the step, in response to the first message, of transmitting a  
3        second message from the first base station to the mobile switching  
4        center indicating that the source mobile station is being handed  
5        off to the third base station, wherein the second message contains:  
6        1) an IP address of the second base station on the local IP  
7        network; 2) a service option field associated with the MS-MS packet  
8        data call; 3) a call identifier value used by the first and second  
9        base stations to identify the MS-MS packet data call; and 4) mobile  
10       identifier values associated with the source and destination mobile  
11       stations.

1        15. The method as set forth in Claim 14, wherein the second  
2        message comprises a Handoff Required message.

1        16. The method as set forth in Claim 14, further comprising  
2        the step, in response to the second message, of transmitting a  
3        third message from the mobile switching center to the third base  
4        station, wherein the third message contains: 1) the IP address of  
5        the second base station on the local IP network; 2) the service  
6        option field associated with the MS-MS packet data call; 3) the  
7        call identifier value used by the first and second base stations to  
8        identify the MS-MS packet data call; and 4) the mobile identifier  
9        values associated with the source and destination mobile stations.

1           17. The method as set forth in Claim 16, wherein the third  
2 message comprises a Handoff Request message.

1           18. The method as set forth in Claim 16, wherein the third  
2 base station responds to the third message by establishing the  
3 second packet data bearer connection with the second base station.

1           19. The method as set forth in Claim 18, wherein the third  
2 base station establishes the second packet data bearer connection  
3 using 1) the IP address of the second base station; 2) the call  
4 identifier value used by the first and second base stations to  
5 identify the MS-MS packet data call; and 3) the mobile identifier  
6 values associated with the source and destination mobile stations.

1           20. The method as set forth in Claim 18, further comprising  
2 the step, in response to establishment of the second packet data  
3 bearer connection by the third base station, of transmitting data  
4 packets associated with the MS-MS packet data call from the second  
5 base station to the third base station via the second packet data  
6 bearer connection.



1           21. The method as set forth in Claim 20, further comprising  
2 the step of transmitting a fourth message from the mobile switching  
3 center to the first base station after the source mobile station is  
4 handed off to the third base station, wherein the fourth message  
5 causes the first base station to notify the second base station  
6 that the first packet data bearer connection between the first and  
7 second base stations is being removed.

1           22. The method as set forth in Claim 21, further comprising  
2 the step, in response to the notification from the first base  
3 station that the first packet data bearer connection is being  
4 removed, of ceasing transmission of data packets associated with  
5 the MS-MS packet data call from the second base station to the  
6 first base station.